

United States Patent (15)

Perry

Patent Number: 4,807,277

Date of Patent: Feb. 21, 1989

(4) REMOTELY ACTIVATED SWITCHING APPARATUS

(7) Inventor: Steven B. Perry, Highlands, N.J.

(11) Assignee: Egant, Inc., Tinton Falls, N.J.

(12) Appl. No.: 51,043

(24) Filed: May 14, 1987

(21) Int. Cl. 1984: H04M 1/24

(22) U.S. Cl. 1984: 379/142, 379/143

(13) Field of Search: 379/1, 25, 102, 330

(14) References Cited

U.S. PATENT DOCUMENTS

4,733,866	11/1977	Trumbley	379/1
4,604,323	2/1986	Pelle	379/1
4,446,340	2/1986	Frye	379/142
4,383,271	11/1984	Naughton et al.	379/1
4,336,417	8/1982	Perry	379/25
4,332,325	10/1982	Lysak et al.	379/1
4,328,133	12/1983	Perry et al.	379/1
4,326,432	12/1986	Moss	379/25
4,252,034	1/1987	Abich	379/25
4,207,130	11/1987	Stevens et al.	379/25
4,207,131	11/1987	Stevens et al.	379/25

FOREIGN PATENT DOCUMENTS

044111	3/1986	Japan	379/25
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Primary Examiner—Charles L. Briggance

Assistant Examiner—Richard A. Eljere

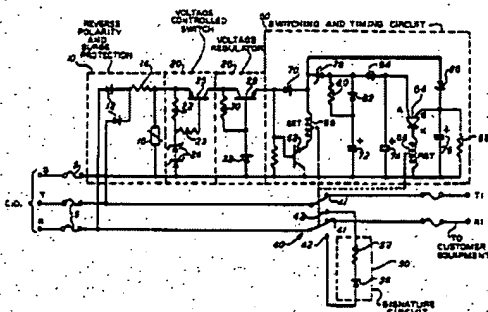
Attorney Agent or Firm—R. G. Rindone, Jr.

(57) ABSTRACT

Apparatus for disconnecting and reconnecting equipment to a telephone line in response to a signal sent over

the telephone line. The apparatus includes a voltage threshold circuit, a voltage regulator circuit and a switching and timing circuit. The switching and timing circuit includes a first energy storage capacitor and a first discharge circuit. The switching and timing circuit further includes a second energy storage capacitor and a second discharge circuit and further includes a third energy storage capacitor and timing resistor. The first discharge circuit includes a first semiconductor switching device and a relay coil of a switching relay. The second discharge circuit includes a second semiconductor switching device and a second relay coil of the switching relay. When a signal is sent over the telephone line which exceeds the threshold level, it is regulated by the voltage regulator and charges up the first, second and third energy storage capacitors in an order such that the third capacitor charges first, the second capacitor next and the first capacitor last. Once the signal disappears from the telephone line, the first energy storage capacitor discharges into the first discharge circuit, thereby placing the switch into a first switching state and disconnecting the customer equipment. In this state, a test circuit, for example, may be connected to the telephone line to enable the central office to test the telephone line for faults. After a predetermined time delay determined by the timing resistor, the second energy storage capacitor into the timing resistor, the second discharge circuit is activated by a voltage differential between the second and third energy storage capacitors whereby the switch is switched from the first state back to the second state, thereby reconnecting the customer equipment, for example, a telephone, back to the telephone line.

20 Claims, 1 Drawing Sheet



US-PAT-NO: 4807277

DOCUMENT-IDENTIFIER: US 4807277 A

TITLE: Remotely activated switching apparatus

Detailed Description Text - DETX (2):

With reference now to the drawing, the apparatus of the present invention includes a first group of terminals connected to the incoming telephone line, i.e., to the central office (C.O.) telephone line. These terminals include a Tip (T), Ring (R) and ground (G) line. The ground line may be an earth ground. The incoming central office lines may be connected by fuses 5 to a reverse polarity and surge protection circuit 10. The output of the reverse polarity and surge protection circuit 10 is coupled to a voltage controlled switch circuit 20, which functions to go into conduction only if the input voltage exceeds a predetermined threshold voltage. The output of the voltage controlled switch circuit 20 is coupled to a voltage regulator circuit 26, which functions to regulate the voltage from the voltage controlled switch circuit 20 to a predetermined output voltage. The output voltage from voltage regulator circuit 26 is then coupled to switching and timing circuit 60, which controls switch 40, for example, a relay. Relay 40 may comprise a double pole/double throw relay having one pair of stationary contacts 41 connected to the customer equipment (T1 and R1) and having the other pair of stationary contacts 42 connected to signature circuit 50.

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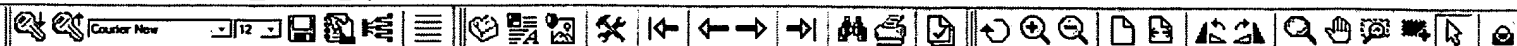
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L15: (47) reverse adj... | US 4510431 | Tag: S | Doc: 35/47 | Format : KWIC

United States Patent (19)

Winkler

(11) Patent Number: 4,510,431

(45) Date of Patent: Apr. 9, 1983

(54) D.C. STEPPED-UP VOLTAGE
TRANSFORMERLESS BATTERY CHARGER(76) Inventor: Harry L. Winkler, P.O. Box 432,
Peachtree, Ga. 30150

(21) Appl. No.: 333,339

(22) Filed: Feb. 25, 1983

Related U.S. Application Data

(43) Continuation of Ser. No. 140,726, Jan. 21, 1980, aban-
doned.

(31) Int. Cl. H02M 7/00

(32) U.S. Cl. 328/29; 329/39

(33) Field of Search: 361/21; 329/1, 39

References Cited

U.S. PATENT DOCUMENTS

3414,581 12/1971 Fries 329/21, 2

3,775,439 11/1973 Carlsen 329/21

4,124,967 11/1978 Hayman 361/21

FOREIGN PATENT DOCUMENTS

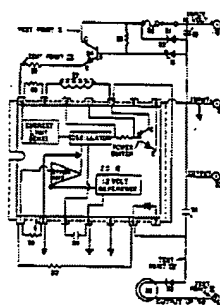
1119401 6/1984 United Kingdom 361/104

Priority Documents—William M. Behr, Jr.,
Attorney—Ernest—Judson H. Jones

ABSTRACT

A battery charger that takes energy from a battery and
steps-up the voltage to charge another battery.The direct current going into the charger's circuit goes
through the voltage regulator (the integrated circuit) and a few
external components which provides the energy to
charge the output capacitor. The output capacitor vol-
tage is controlled by a relative voltage divider network,
and energy stored in the output capacitor is transferred
through a diode and a current limiter to charge the
battery.

1 Claim, 1 Drawing Figure

US-PAT-NO: 4510431
DOCUMENT- US 4510431 A
IDENTIFIER:TITLE: D.C. Stepped-up voltage transformerless battery
charger

Detailed Description Text - DETX (2):

This battery charger is mainly designed to charge 12 and 15 volt nickel-cadmium batteries for hand held transceivers. The battery charger operates from 12 volts direct current with negative ground. With positive power going into the charger circuit, it goes through the switch (21) and through the fuse (22). The fuse (22) is used to protect the circuit of the charger in case something goes wrong, also for protection from reverse polarity. A rectifier type diode (20) the anode is connected to the ground (17) and the diode (20) cathode is connected to the far side of the fuse (22). When the switch (21) is on and the diode (20) receives reverse polarity, it will short out the fuse (22) thus causing it to blow. This protects the regulator transistor (24) as well as the Integrated Circuit (15) . . . from here on, the Integrated Circuit (15) will be referred to as I.C. (15).

Claims Text - CLTX (4):

a circuit protector comprising a fuse and a first rectifier, means for connecting one end of said fuse to said power switch and means for connecting said rectifier to be poled to blow said fuse upon receiving reverse polarity of said voltage source;

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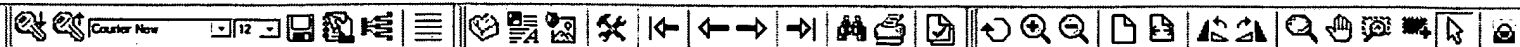
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D-C motor system	318/
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ed-up voltage	320/
ressless battery	
engine oil level	123/
e system	



United States Patent (11)

(11) 3,956,683

Popp

(45) May 11, 1976

(54) TAPER TYPE OF BATTERY CHARGER

(75) Inventor: Ralph Popp, Pittsburgh, Pa.

(73) Assignee: Westinghouse Air Brake Company, Westinghouse, Pa.

(22) Filed: Mar. 6, 1974

(21) Appl. No.: 448,459

(52) U.S. Cl.: 320/13; 320/79;

321/18

(51) Int. Cl.: H02J 7/10

(54) Field of Search: 320/13-24,

320/79, 40, 51, 31; 321/18, 19

(56) References Cited

UNITED STATES PATENTS

3,210,877 10/1972 Brown 321/19

3,273,996 12/1963 Partridge 320/40

3,284,861 7/1963 Berg 320/79

3,307,423 9/1963 May 321/18

3,263,162 1/1968 Bredas 320/13 X

3,402,794 6/1971 Westover 320/79

Primary Examiner—J. D. Miller

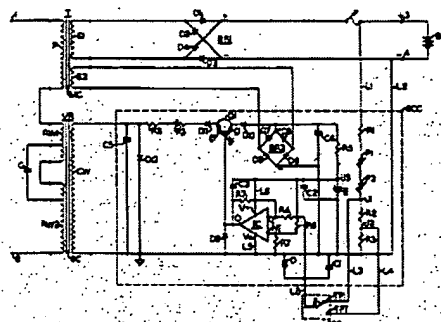
Assistant Examiner—Robert J. Mickey

Attorney, Agent, or Firm—J. B. Sock; R. W. McIntire, Jr.

[57] ABSTRACT

This disclosure relates to an automatic taper charging battery charger having a power transformer and a series connected variable reactor, a pair of rectifiers powered by the transformer, a pair of output terminals coupled to one of the rectifiers, a sensing and control circuit powered by the other rectifier and responsive to the voltage of a battery connected to the output terminals for controlling the impedance of the variable reactor and in turn regulating the voltage developed across the power transformer and thereby controlling the current charging rate supplied to the battery.

8 Claims, 1 Drawing Figure



US-PAT-NO: 3956683

DOCUMENT-IDENTIFIER: US 3956693 A

TITLE: Taper type of battery charger

Detailed Description Text - DETX (11):

As mentioned above, reverse polarity protection positively ensures that the battery charger is not damaged by burn out or the like by the diodes of bridge rectifier BR1 and fuse F. If the battery B is inadvertently connected to the reverse manner from that shown in the drawings, the four diodes of the bridge rectifier BR1 immediately conduct and short circuit the battery B through the fuse element F. The short circuiting causes the fuse F to blow thereby immediately breaking the circuit so no resulting impairment will occur to the various current sensitive elements of the charger. In addition, the diode D protects the operational amplifier IC while the diode D10 protects the transistor Q1 against damage and destruction on inadvertent reverse connection of the battery.

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and controlling 137/

U.S. Patent

June 20, 1995

Sheet 3 of 12

5,426,771

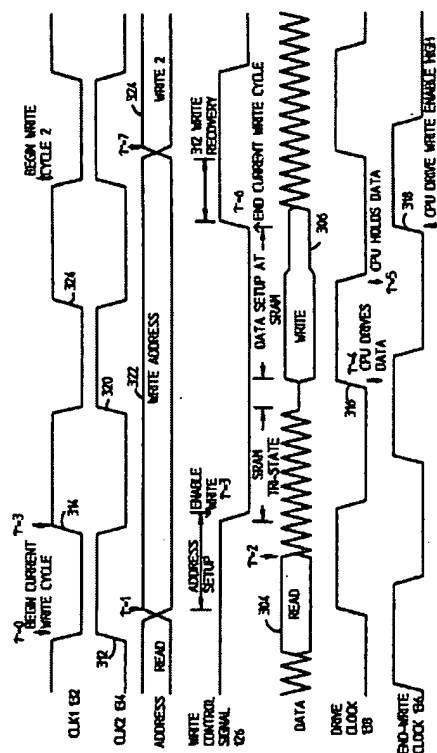


FIG 3

US-PAT-NO: 5426771

DOCUMENT- US 5426771 A

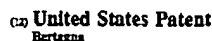
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TITLE: System and method for performing high-speed cache memory writes

Detailed Description Text - DETX (68):

When new data is driven by CPU 110, the drive FETs switch the output signals. The hold circuit then maintains this signal on the bus during the data hold period. The hold circuit essentially follows the output. The higher current drive FETs can easily overdrive the hold circuit, thus switching the output. The hold circuit then holds the new value. An advantage of holding data on data bus 124 using keeper FETs is that chip enable and output enable signals are not required. This is because the high current FETs that originally drive data on to data bus 124 in step 214 are turned off and only the keeper FETs hold the data. New data can be driven on to data bus 124 by either CPU 110 or by SRAM 120 without turning off the hold circuit FETs. Since the drive FETs have already been turned off, situations where SRAM 120 drivers are fighting CPU 110 drivers will never arise.



(10) Patent No.: US 6,384,875 B2
(45) Date of Patent: May 7, 2002

- (54) VIDEO DISPLAY POSITIONING SYSTEM

(75) Inventor: Richard A. Bartaguan, Bakersfield, CA (US)

(75) Amigtec Translight Communications Corp.,
Brea, CA (US)

(*) Notice: Subject to any disclaimer, the value of this notice is estimated at \$100,000 under 35 U.S.C. 154(c) by 0 0000.

(2) App. No.: 92-37-419

(72) Filed: Apr. 1, 2003

Related U.S. Application Data

(53) Continuation of application No. PCT/US80/28039, filed on Dec. 4, 1980.
(54) Previous application No. 80711,561, filed on Dec. 4, 1980.

(S2) Int. Cl. ----- H06N 5/44; H06N 5/44
(S3) F. I. C. ----- 1-18724; 1-18716; 1-18708

(1) 日本国政府は、本協定の締結に際して、

(2) 日本国政府は、本協定の締結に際して、

(56) Field of Search 348.025, 836,
348.077; 248/280.11, 654, 917-924; 244/212,
113.5; 361-681; 345.005

(56)	References Cited
	U.S. PATENT DOCUMENTS

1.256.271 A 1.256.271 B

5,105,309	A	82,190	Yamada	
5,122,225	A	62,704	Shenck et al.	
5,133,783	A	127,986	Poon et al.	
5,139,340	A	121,264	Dirlik	
5,143,487	A	47,968	Kico	
5,148,383	A	37,888	Ichino	
5,164,223	A	82,599	Kono	
5,175,472	A	124,169	Huang	204,421
5,181,887	B1	12,223	Roca	204,337
5,186,499	B1	27,222	Kawa	204,713

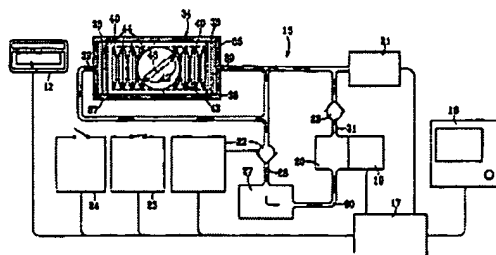
* cited by example.

Primary Examiner—Steven Sizem
Assistant Examiner—Paul A. DeJ
(74) Attorney, Agent or Firm—Small, Larché, LLP

(57) **ABSTRACT**

The pressure invention relates to a video monitor display positioning system of the type in widespread use in passenger-cabin entertainment systems and includes a locating mechanism which a video screen is adjustably positioned relative to the seat back of an aircraft passenger seat. The system includes a manual control in the form of a hand lever which may be moved forward through a hydraulic system to include a mechanical linkage from the screen to a linear motor to mechanical motion actuator substantially which will in turn operate by a hydraulic system that includes a cylinder, one extremity opposed, hollowed plunger, an internal spring positioned within the cavity formed by the hollow plunger, a hydraulic circuit including a hydraulic oil reservoir, an electric motor that operates a hydraulic pump, a solenoid valve and an over pressure switch.

14 Cities, 11 Degrading Routes



US-PAT-NO: 6324875

DOCUMENT-IDENTIFIER: US 6384875 B2

TITLE: Video display positioning system

Detailed Description Text - DETX (29):

Also, it is preferred that the control system be configured so that a retract command must be given to reset the over-pressure latch before an extend command will be recognized in the case that the over pressure switch opens and the screen retracts. In the present embodiment it is envisioned that reverse polarity protection is provided through conventional circuitry but that no fuse protection is incorporated. Specific board layout, connecting wire descriptions, junction box locations and configurations are within the skill of the art in this field and are chosen so that the system will work for its intended purpose of positioning the screen hydraulically within the principle of the invention and in the specific application chosen.



L10: (3) reverse with... | US 20050049107 | Tag: S | Doc: 1/3 | "Full" 1/32



US 20050049107A1

(10) United States

(12) Patent Application Publication (30) Pub. No.: US 2005/0049107 A1
Willmot et al. (40) Pub. Date: Mar. 3, 2005

(50) TRANSMISSION SYSTEM

(57) ABSTRACT

(70) Inventors: Eric P Willmot, Mount Eliza (AU);
Lance Pidgeon, Oremobyras (AU)Correspondence Address:
MICHAEL BEST & FRIEDRICH, LLP
100 E WISCONSIN AVENUE
MILWAUKEE, WI 53202 (US)

(71) Appl. No.: 10/498,380

(72) PCT Filed: Dec. 10, 2001

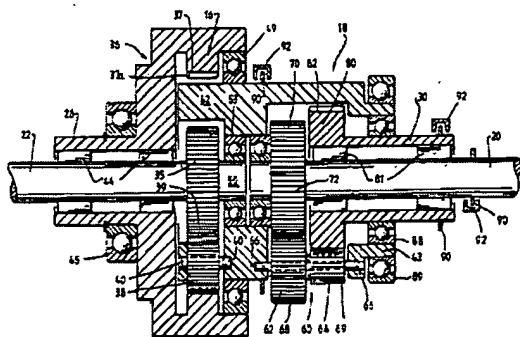
(80) PCT No.: PCT/AU01/01589

Publication Classification

(51) Int. Cl. F16H 57/06

(52) U.S. Cl. 475/339

Transmission systems are disclosed which include a dual screwdrum system having an output screwdrum (70) and a control screwdrum (80). A planet cage (18) is arranged around the dual screwdrum system and includes a planet gear (62) in mesh with the screwdrum (70) and a planet gear (64) in mesh with the screwdrum (80). The planet gears (62, 64) are coupled to one another. The drive ratio of the transmission is controlled by controlling the cage (18) or the control screwdrum (80). The speed of rotation of the input (22), output (20) and control screwdrum (70) are sensed by sensors (90) and control signals are generated to control a control device to thereby control the rotation of planet cage (18) or the control screwdrum (80) to thereby set the drive ratio of the transmission. The control devices can include a motor, one or more magnetic powder clutches, a variable controlled system and a mechanical pitch transfer gear system.



DOCUMENT-IDENTIFIER: US 20050049107 A1

TITLE: Transmission system

Detail Description Paragraph - DETX (141):

[0295] With reference to FIG. 24, the controller has a pair of field effect transistors 700 and 701 which are connected in parallel with one another. Power is supplied to the field effect transistors from a battery 703. A diode 704 is provided to protect the circuitry should a battery of a higher voltage than required be used or the battery connected in reverse polarity. A fuse 705 is connected between the diode 704 and the battery so that should the voltage supplied by the battery be too high or the battery connected in reverse polarity, the fuse 705 will burn out to thereby shut off power supplied to the circuitry shown in FIG. 24.

Details Text Image HTML KWIC

Reid et al.

[11] Patent Number: 5,636,863
[45] Date of Patent: Jun. 10, 1997

[54] VEHICLE STEERING COLUMN CONTROL SYSTEM

[75] Investors: Scott A. Reid, Brookfield; Paul G. Repe, Germantown; James E. Hansen, Oak Creek; Ruth E. Ebbell, Milwaukee; Erich Rehm, West Bend, all of Wis.

[73] Antigen: Eston Corporation, Cleveland, Ohio

[21] Appl. No. 233,633

203 Filed: Apr 26,

(5) Int. Cl.⁶ _____ DOR 21.02

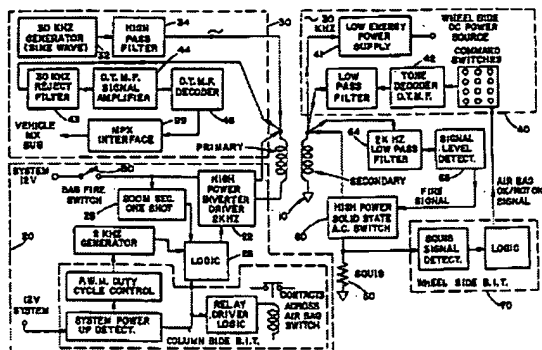
[10] Field of Search 730734, 735

280731; 300720.1; 430725, 154; 940428.

[36] **References Cited**

U.S. PATENT DOCUMENTS

4,218,073	8/1980	Cyrolol	439/1.5
4,322,099	12/1983	Salsoral et al.	479/1.6
4,608,530	6/1986	Urochloplast et al.	907/10.1
4,623,889	11/1986	Taraka et al.	907/10.1



US-PAT-NO: 5636863

DOCUMENT-IDENTIFIER: US 5636863 A

TITLE: Vehicle steering column control system

Detailed Description Text - DETX (9):

The H-drive alternately switches the primary with forward and reverse polarity square wave signals equal to the system DC power applied to it. With conventional 12 volt vehicle system, this is the equivalent of applying a plus and minus 12 volt square wave (24 volts peak-to-peak) onto the transformer 10, yet only using a single ended 12 volt supply. Accordingly, primary currents will exceed 20 amperes and secondary voltages and resultant currents into the squib are sufficient to fire an air bag.

Detailed Description Text - DETX (10):

In the embodiment shown in FIG. 2C, the square wave signal is initially generated by a 2 khz generator circuit 24 (TL 494 integrated circuit), especially designed for inverter and PWM power supply applications. Two alternating square wave signal outputs are generated (pins 9 and 10) to be used to drive the H-drive circuit 22. The H-drive output is comprised of four high current FET power transistors 91, 92, 93, 94, two P-channel types and two N-channel types. For operation, for instance, transistors 91 and 94 are to be turned on to conduct current through the transformer primary in one direction. In effect, one side of the winding is connected to plus 12 volts and the other side to ground. On the next half-cycle, this is reversed by turning off transistors 91, 94 and instead turning on transistors 92, 93, and in effect reversing the polarity on the transformer. The generator circuit 24 is operated in a mode that allows a brief "OFF" period between polarity reversals to assure that two FETs on one side of the bridge are not simultaneously turned on, which could cause a short across the main supply to ground (i.e., transistors 91 and 93 are never on simultaneously, or transistors 92, 94 either). Logic circuitry 26 between the generator 24 and the H-drive 22 is used to switch the H-drive 22 from an inoperational state (normal system operation) to a fire condition. In other words, during normal operation of the steering control system, the H-drive 22 should not be operating in the high power inverter mode. Rather, a transistor 94 is the only FET biased on, and this is done to ground at one end of the transformer primary, which is necessary for normal operation. The other three FETs 91, 92, 93 are held in an OFF state

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21	<input type="checkbox"/>	US 3929436 A	19751230	11	Rotary electrostatic precipitator	96/
22	<input type="checkbox"/>	US 3851232 A	19741126	18	ELECTRIC VEHICLE PROPULSION SYSTEM	318
23	<input type="checkbox"/>	US 3786264 A	19740115	10	HIGH SPEED LIGHT DETECTOR AMPLIFIER	250

United States Patent (19)

Bertalan et al.

US 6130487 A
 Patent Number: 6,130,487
 Date of Patent: Oct. 10, 2000

(54) ELECTRONIC INTERFACE AND METHOD FOR CONNECTING THE ELECTRICAL SYSTEMS OF A TRUCK AND TRAILER

(75) Inventors: Richard P. Bertalan, Anthony J. E. Pannier, LaCrosse, Wis. M.; Ortel, Bruce M.; Jeffrey E. Berglund, Burlington, Wis. M.

(73) Assignee: PACCAR Inc., Bellevue, Wash.

(21) Appl. No.: 09/253,314

(22) Filed: Feb. 19, 1999

(51) Int. Cl.⁷ B60D 1/00

(52) U.S. Cl. 307/10.1; 342/310.01; 340/431.1; 340/335; 340/923.06

(57) Field of Search: 307/10.1, 9.1; 340/923.06, 538, 431, 310.01; 340/431.1, 340/335, 340/923.06

References Cited

U.S. PATENT DOCUMENTS

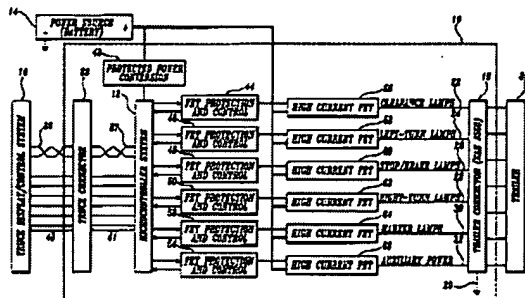
4,122,778 1/1982 MacIntosh et al. 340/923.06
 4,387,924 1/1982 Gao et al. 340/431.1
 4,444,312 1/1982 Jager 307/10.1
 4,729,051 1/1982 Ortel 307/10.1
 4,729,052 1/1982 Ortel 307/10.1
 5,021,128 9/1990 Ortel 307/10.1

(57) Primary Examiner—Abner W. Palatelli
 Attorney Agent, or Firm—Christensen O'Connor Johnson & Kindig PLLC

ABSTRACT

An electrical interface for connecting a truck electrical system to a trailer electrical system. The electrical interface includes a solid-state switching device for selectively connecting a power source to the truck electrical system to a circuit in the trailer electrical system. If a fault is detected in the provision of power to the circuit in the trailer electrical system, the solid-state switching device reduces the flow of power or disconnects the power source from the circuit in the trailer electrical system. A microcontroller system connected to the truck electrical system transmits control signals to the solid-state switching device to control the flow of power from the power source to the circuit in the trailer electrical system in accordance with instruction signals received from the truck electrical system. The solid-state switching device includes a switching switch connected between the power source and the circuit in the trailer electrical system and a transistor driver circuit connected to the microcontroller system to control the operation of the switching switch. The microcontroller system includes a processor and a transceiver that conveys data transmitted between the processor and the truck electrical system. The electrical interface may also include a diagnostic board connector for connecting an external circuit, such as a communication circuit, to the electrical interface that enables the processor to communicate data with the circuit in the trailer electrical system using an existing electrical connection to an output of the electrical interface.

24 Claims, 18 Drawing Sheets



a 7-pin SAE J560 connector. One pin of the J560 connector is connected to ground via line 20. The other six pins of the J560 connector are connected to high-current field-effect transistors (FETs) 56, 58, 60, 62, 64, and 66 via lines 22, 24, 26, 28, 30, and 32 to provide an electrical connection to the following respective circuits in the trailer 34: clearance lamps, left-turn signal lamps, stop/brake lamps, right-turn signal lamps, marker lamps, and auxiliary power circuit.

Detailed Description Text - DETX (8):

The power conversion circuit 42 includes a diode D1 to protect the circuit from reverse polarity of the inputs of the power source 14. The power conversion circuit 42 also includes an inductor L1 and capacitors C1 and C2 to filter higher frequency noise on the voltage input from the power source 14.

Detailed Description Text - DETX (12):

The microcontroller system 12, an embodiment of which is described in more detail below in reference to FIGS. 3A and 3B, receives instruction signals from the truck display/control system 18 by way of the data link 37 and/or individual signal lines 41 as shown in FIG. 1. FIG. 3A is a schematic drawing of a first portion of the microcontroller system 12 showing the microcontroller aspect of the microcontroller system 12. FIG. 3B is a schematic drawing of a second portion of the microcontroller system 12 showing the data communication aspect of the microcontroller system 12. According to instruction signals received from the truck display/control system 18, the microcontroller system 12 sends control signals to one or more FET protection and control circuits 44, 46, 48, 50, 52, and 54 to permit or interrupt the flow of current from the power source 14 through high-current FETs 56, 58, 60, 62, 64, and 66 to the trailer connector 16. The FET protection and control circuits 44, 46, 48, 50, 52, and 54, and the corresponding high-current FETs 56, 58, 60, 62, 64, and 66, are described in more detail below in reference to FIGS. 4-9.

Detailed Description Text - DETX (14):

Control lines labeled Control1-Control16 convey control signals from output pins on the processor U3 to the FET protection and control circuits 44, 46, 48, 50, 52, and 54 to indicate when to turn on and off the corresponding high-current FETs 56, 58, 60, 62, 64, and 66. As will be better understood from the discussion below regarding the FET protection and control circuits 44, 46, 48, 50, 52, and 54, faults detected in providing power to the trailer 34 are reported to the processor U3 through lines Fault1-Fault6. The processor U3 may then forward information

Details	Text	Image	HTML	KWIC
17	US 4791349 A	19881213	17	Electric power system
18	US 4758937 A	19880719	21	DC-DC converter
19	US 4616166 A	19861007	25	Electric power system for starting a large rotatable

(15) United States

(17) Patent Application Publication (19) Pub. No.: US 2004/0009075 A1
Meza et al. (10) Pub. Date: Jan. 15, 2004(54) PUMP AND PUMP CONTROL CIRCUIT
APPARATUS AND METHOD(70) Inventors: Humberto V. Meza, Trinita, CA (US);
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(21) Appl. No.: 10/433,874

(22) Filed: Jan. 4, 2003

Related U.S. Application Data

(67) Continuation-in-part of application No. 09/794,378,
filed on Nov. 25, 2001, now Pat. No. 6,523,245.

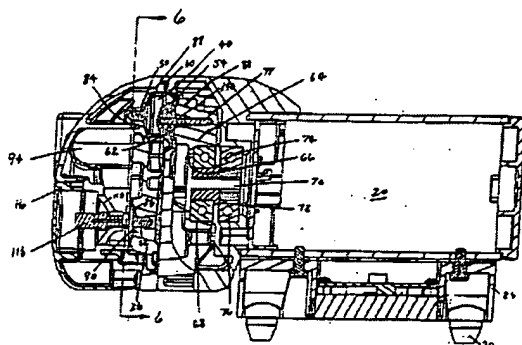
Publication Classification

(51) Int. Cl. F04B 49/18
(52) U.S. Cl. 417/332; 417/44.11

(57)

ABSTRACT

A method and apparatus for a pump and a pump control system. The apparatus includes a pump assembly formed in a diaphragm and coupled to the diaphragm by a membrane. The membrane has a bottom surface angled with respect to a top surface of the diaphragm. The apparatus also includes an outlet port positioned tangentially with respect to the perimeter of an outlet chamber. The apparatus further includes a non-mechanical pressure sensor and a temperature sensor coupled to a pump control system. For the method of the invention, the microcontroller provides a pulse-width modulation control signal to an output power stage in order to selectively control the power provided to the pump. The control signal is based on the pressure within the pump, the current being provided to the pump, the voltage level of the battery, and the temperature of the pump.



DOCUMENT-IDENTIFIER: US 20040009075 A1

TITLE: Pump and pump control circuit apparatus and method

Detail Description Paragraph - DETX (68):

[0125] As shown in FIG. 24, a first power temperature control (PTC) device 519 and a second PTC device 521 can be connected in series with the connection 518 to act as fuses in order to protect against a reverse in polarity. In some embodiments, a first battery cable (e.g., represented by the connection 518) can be connected to a positive input of the input power stage 504 and a second battery cable (e.g., represented by the connection 520) can be connected to a negative input of the input power stage 504. The first battery cable can be designed to connect to the positive terminal of the battery and the second cable can be designed to connect to the negative terminal of the battery. However, the PTC devices 519 and 521 can protect against reverse polarity. If the first battery cable is initially connected to the negative terminal of the battery and the second battery cable is initially connected to the positive terminal of the battery, the electronics of the pump control system 500 will not be harmed. When the first and second cables are switched to the proper battery terminals, the pump 10 will operate normally.

Details Text Image HTML KWIC

	P	A1				
9	P	US 20010043455	20011122	18	Video display positioning system	361/
10	P	US 20010017755	20010830	12	Semiconductor integrated circuit provided with input	361/
11	P	US 6870196 B2	20050322	11	Series/parallel OLED light source	257/

(10) United States

(12) Patent Application Publication (19) Pub. No.: US 2002/0109952 A1
Rapinski et al. (43) Pub. Date: Aug. 15, 2002(54) HIGH VOLTAGE BATTERY CUTOFF
CIRCUIT FOR A MOTOR VEHICLE
ELECTRICAL SYSTEM

(57) Int. Cl. 361/26, 361/71

(70) Inventors: Robert S. Rapinski, Kokomo, IN
(US); Alexander C. Lewison, Kokomo,
IN (US); Donald Aug. Kokomo, IN
(US)

(57) ABSTRACT

An improved over-voltage protection circuit for a motor vehicle electrical system includes an over-voltage responsive circuit for momentarily disconnecting the vehicle storage battery and alternator from vehicle electrical loads, and an auxiliary storage battery for supplying a safe operating voltage to the electrical loads during the momentary disconnection. The over-voltage responsive circuit includes a MOSFET device that couples the vehicle storage battery and alternator to the electrical loads and auxiliary storage battery, and a voltage responsive circuit that turns the MOSFET device off to decouple the electrical loads and auxiliary storage battery from the vehicle storage battery and alternator so long as an over-voltage condition is detected.

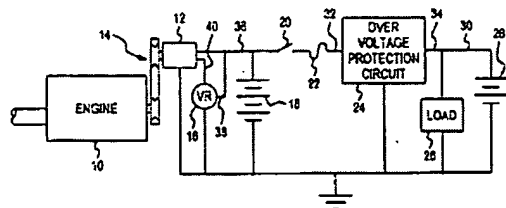
Correspondence Address:
JIMMY L. FUNKE
DELPHI TECHNOLOGIES, INC.
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P.O. Box 9802
Kokomo, IN 46904-9802 (US)

(21) Appl. No.: 09/782,711

(22) Filed: Feb. 12, 2001

Publication Classification

(51) Int. Cl. H02H 1/1

DOCUMENT-
IDENTIFIER:
TITLE:

US 20020109952 A1

High voltage battery cutoff circuit for a motor vehicle
electrical system

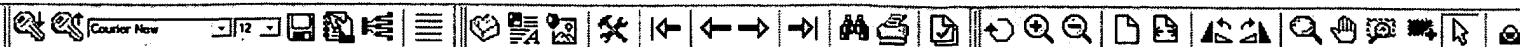
Detail Description Paragraph - DETX (4):

[0008] The over-voltage protection circuit 24, shown in detail in FIG. 2, operates in the event of a specified over-voltage on line 32 to effectively decouple lines 32 and 34, isolating the load 26 and auxiliary storage battery 28 from the alternator 12 and main storage battery 18. In such event, the auxiliary battery 28 provides power to load 26 via line 30, and the load 26 is protected from over-voltage damage, and loss of function due to automatic shut-down is prevented. Referring to FIG. 2, the over-voltage protection circuit 24 includes a P-channel MOSFET 50 coupling line 32 to line 34 through its source-to-drain circuit, a pull-down resistor 52 connected between the MOSFET (gate terminal 54 and ground for normally biasing the MOSFET 50 to a conductive state, and a voltage responsive circuit 56 for biasing MOSFET 50 to a non-conductive state when the voltage with respect to ground on line 32 exceeds a predefined threshold. The voltage responsive circuit 56 includes a zener diode 58 and resistor 60 coupled in series between line 32 and ground potential, a NPN transistor 62 having its base coupled to a junction 64 between zener diode 58 and resistor 60, and a PNP transistor 66 having its emitter-collector circuit coupled across the gate-to-source circuit of MOSFET 50. The zener diode 59 is ordinarily reverse biased, and the resistor 60 maintains the transistors 62 and 66 in non-conductive states. However, when the voltage on line 32 exceeds the breakdown voltage of zener diode 58 (which may be 18 volts, for example), a current path is established through the resistor 60, and the resulting voltage at junction 64 biases transistor 62 to a conductive state. This establishes a current path through the emitter-base circuit of transistor 66, the collector-emitter circuit of transistor 62 and resistor 68, biasing transistor 66 conductive to place a low impedance path between the gate and source terminals of MOSFET 50 to bias MOSFET 50 to a non-conductive state. Finally, the over-voltage protection circuit 24 also includes a second zener diode 70 connected between line 32 and ground potential for limiting the peak voltage applied to the aforementioned circuit elements, and for establishing a low impedance path through fuse 22 and battery 18 in the event that a reverse polarity is applied to battery 18 during jump starting; for example, zener diode 70 may have a breakdown voltage of approximately 35-volts.

Details Text Image HTML KWIC

9	<input checked="" type="checkbox"/>	<input type="checkbox"/>	A1	US 20010043455	20011122	18
			A1			
10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	A1	US 20010017755	20010830	12
			A1			
11	<input checked="" type="checkbox"/>	<input type="checkbox"/>	B2	US 6870196	20050322	11

Video display positioning system 361/
Semiconductor integrated circuit provided with input 361/
Series/parallel OLED light source 257/



Patent Application Publication Nov. 29, 2001 Sheet 2 of 21 US 2001/0045355 A1

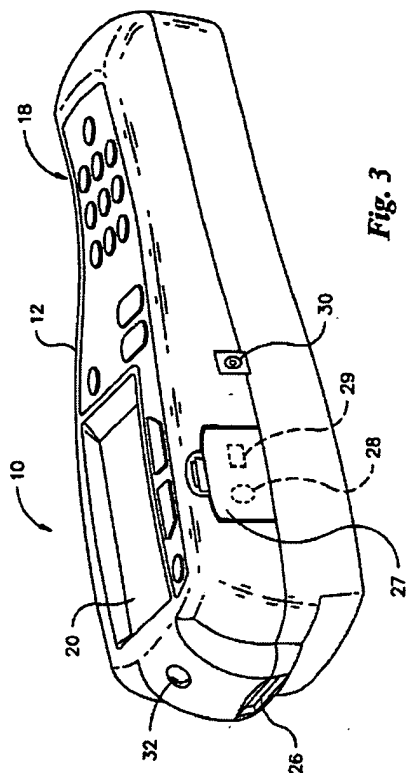


Fig. 3

DOCUMENT-IDENTIFIER: US 20010045355 A1

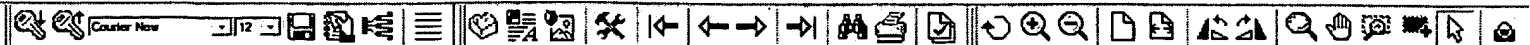
TITLE: Medical diagnostic system

Detail Description Paragraph - DETX (21):

[0045] The main source of power for the instrument 10 is a battery pack 524. In the present embodiment, the battery pack 524 is comprised of six (6) series connected nickel-metal hydrid (NiMH) batteries to provide a nominal 7.2 volt output source. The use of nickel-metal hydrid technology allows for high energy density and quick recharge times. However, other types of batteries such as nickel-cadmium (NiCD) and lithium-Ion (LiIon) and others known to those skilled in the art could be used. The instrument 10 also includes an intelligent fast charge controller 526 which functions to recharge the battery pack 524, typically in two hours or less and continuously monitors battery temperature using a sensor (not shown) embedded within the battery pack. In the present embodiment, the intelligent battery charger comprises a Maxim MAX 712 integrated circuit. Other intelligent battery charger circuits may be used if desired. If the battery pack temperature is too high or too low, the intelligent charger 526 stops the fast charging operation until a safe battery pack temperature level is reached. A self resetting fuse (not shown) is also embedded within the battery pack 524 to provide enhanced safety. The battery charger 526 is activated whenever an accompanying AC adapter wall pack (not shown) is connected to the instrument 10 through the battery charger connection 30 (FIG. 3) to provide power to the instrument 10 and to permit normal use of the device 10 during recharging of the battery pack 524. A second fuse (not shown) is also provided at the input connection for the wall pack and both the battery pack 524 and the wall pack connections have reverse polarity protection.

Details Text Image HTML KWIC

		A1				
9	<input checked="" type="checkbox"/>	<input type="checkbox"/>	US 20010043455	20011122	18	Video display positioning system 361/
10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	US 20010017755	20010830	12	Semiconductor integrated circuit provided with input 361/
11	<input checked="" type="checkbox"/>	<input type="checkbox"/>	US 6870196 B2	20050322	11	Series/parallel OLED light source 257/



L15: (47) reverse adj... | US 6833683 B2 | Tag: S | Doc: 12/47 | "Full" 18 | To: |

L15: (47) reverse adj... | US 6833683 B2 | Tag: S | Doc: 12/47 | Format: K |



US06833683B2

(12) United States Patent
Winkler(10) Patent No.: US 6,833,683 B2
(15) Date of Patent: Dec. 21, 2004(50) UNIVERSAL BATTERY CHARGER
APPARATUS(56) References Cited
U.S. PATENT DOCUMENTS(70) Inventor: Harry L. Winkler, P.O. Box 632,
Pawcatuck, CT (US) 06350* cited by examiner
Primary Examiner—Lawrence Lok(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 57 days.

(57) ABSTRACT

(21) Appl. No.: 10/447,723

A Universal Battery Charger Apparatus designed to be used
with a small gas engine equipped with a small alternator,
capable of generating the charge level of a small 12 volt
battery. Said battery supplies power for the circuit of said
battery charger. Said engine drives a second alternator. Said
battery charger has a wide range of controlled output volt-
ages as well as 12 different current limiting capabilities
making possible use of not only a battery charger for
charging different voltages of external batteries, but also a
DC arc welder under a 115 volt AC power supply, all
within its own framework, thus making said apparatus
portable.

(22) Filed: Apr. 7, 2003

(45) Prior Publication Data

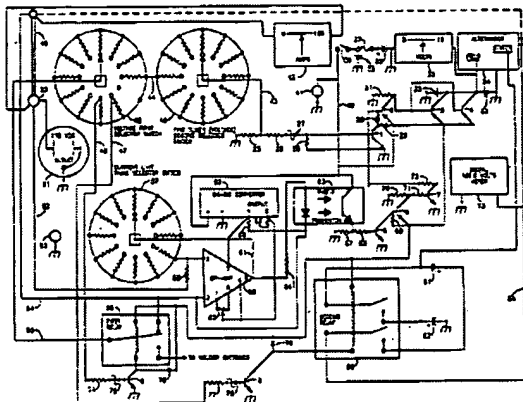
US 2004/0196368 A1 Oct. 7, 2004

(51) Int. Cl. H02J 7/00

(57) U.S. Cl. 320/189; 320/107

(56) Field of Search 320/110, 115, 121, 123

11 Claims, 2 Drawing Sheets

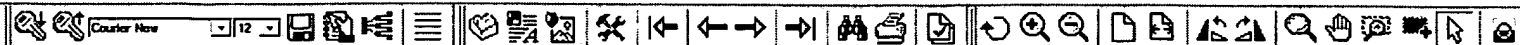
US-PAT-NO: 6833683
DOCUMENT-IDENTIFIER: US 6833683 B2
TITLE: Universal battery charger apparatus

Detailed Description Text - DETX (2):

An explanation of the universal battery charger's circuit is based with a 12 volt battery #36 installed, with the 12 volt-power switch #39 turned ON. A diode #38 is wired across one end of a fuse #37 and to the ground. Said diode is poled to blow said fuse in the event of reverse polarity. As seen in FIG. 2, transistors #2,3,4 and 6 are PNP type, with their emitters connected to the 12 volt-lead #40. Transistors #1,5,7,8 and 9 are NPN type, with their emitters connected to ground. As seen in FIG. 2, the collectors of both power transistors are connected to the field terminal of the alternator #34. Said output power transistors #3 and #4 are a matched pair and are wired to produce full output voltage to said field of said alternator #34 until said transistors receive a different command from either the voltage sensor or the current limiter. A resistor #31 with one end connected to ground, the other end connected to the bases of said power transistors #3 and #4, thus making a negative bias for said power transistors. Two diodes #32 and #33 with anode ends connected to ground and cathodes connected to the collector's of said power transistors #3 and #4. Said diodes are used to protect said power transistors from inductive spikes caused by the field windings of said alternator #34.

Details Text Image HTML KWIC

11		A1	US 6870196 B2	20050322	11	circuit-provided with input	
12			US 6833683 B2	20041221	8	Series/parallel OLED light	257/
13			US 6606227 B2	20030812	5	source	
						Universal battery charger	320/
						apparatus	
						High voltage battery cutout	361/
						circuit for a motor vehicle	



L15: (47) reverse adj... | US 6256185 | Tag: S | Doc: 15/47 | "Full" View

L15: (47) reverse adj... | US 6256185 B1 | Tag: S | Doc: 15/47 | Format : KWIC

United States Patent

Mallor

(19) Patent No.: US 6,256,185 B1
(45) Date of Patent: Jul. 3, 2001

LOW VOLTAGE DIRECT CONTROL UNIVERSAL PULSE WIDTH MODULATION MODULE

(72) Inventor: Dennis A. Mallor, Racine, WI (US)

(73) Assignee: Transbrida, LLC, Menomonee Falls, WI (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(d) by 0 days.

(21) Appl. No.: 09/344,194

(22) Filed: Jul. 20, 1999

(51) Int. Cl. 7: H02M 47/00

(52) U.S. Cl.: 361/182; 361/184; 361/185; 361/187; 361/194; 361/195; 361/196; 361/210

(56) Field of Search: 361/64, 150, 155-157, 361/170, 168, 1, 166, 1, 187, 154-155, 194-197, 361/210, 152

References Cited

U.S. PATENT DOCUMENTS

4,253,177 10/1961 Woodhouse et al.
4,346,213 8/1980 Engel
4,620,329 10/1986 Osherson
4,620,330 10/1986 Osherson et al.
4,641,766 4/1987 Redman et al.
4,645,211 8/1980 Redman et al.

4,964,024 12/1990 Wu et al.
4,915,172 10/1993 Egan, III et al.
5,458,871 2/1994 Barfi
5,548,258 8/1996 Bailey et al.
5,621,602 9/1997 Adams et al.
5,647,887 7/1997 Tancul
5,723,748 12/1997 Pich et al.
5,723,752 12/1997 Kim et al.
5,743,631 5/1998 Owsidajm et al.
4,754,386 5/1998 Baskin et al.
5,717,622 12/1998 Perkins
5,831,743 1/1999 Kessel

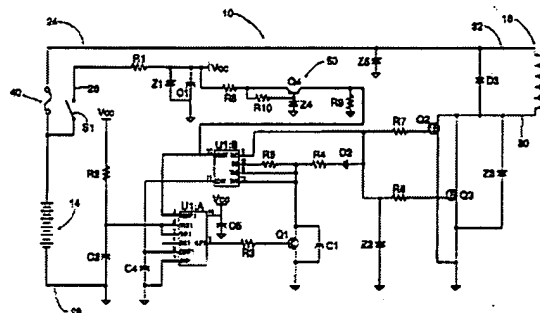
* cited by examiner

Primary Examiner—Michael Sherry
(74) Attorney, Agent, or Firm—Rysz Kromholz & Macdon, S.C.

ABSTRACT

An electrical control module and circuit for controlling a solenoid. The control circuit provides a constant voltage to a solenoid for a predetermined time period after which a pulse width modulated voltage is supplied. The circuit further includes cooperation for reverse polarity protection, transient voltage protection, low gate drive voltage protection, reduced heat dissipation and improved magnetic drive under low input voltage conditions during application of the pulse width modulated voltage. The module may be used in conjunction with a single end or a dual end solenoid. The circuit may be utilized on a 12 volt or a 24 volt electrical system without adjustment.

24 Claims, 4 Drawing Sheets



US-PAT-NO: 6256185
DOCUMENT- US 6256185 B1
IDENTIFIER:

See image for Certificate of Correction

TITLE: Low voltage direct control universal pulse width modulation module

Brief Summary Text - BSTX (16):

The circuit preferably includes reverse polarity protection means associated with said first and second voltage control means for opening said circuit in the event that the polarity of said circuit is reversed. A fuse may also be provided, the fuse being sized to open when a reverse polarity condition is detected. In addition, low voltage protection means may be provided for disabling the first and second voltage control means when an inadequate input voltage is supplied to said circuit. The input voltage is preferably in the range of 8 volts to 30 volts.

Claims Text - CLTX (14):

8. The circuit of claim 1 further including reverse polarity protection means associated with said first and second voltage control means for opening an external protective fuse wired in series with said circuit in the event that input polarity to said circuit is reversed.

Claims Text - CLTX (36):

21. The circuit of claim 14 further including reverse polarity protection means associated with said voltage supply source for opening a supply fuse in the event that said circuit is reversely connected to said voltage supply source.

Details	Text	Image	HTML	RWC
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15	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
16	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14	US 6384875 B2	20020507	18	circuit for a motor vehicle	348/
15	US 6256185 B1	20010703	13	Video display positioning system	361/
16	US 6034511 A	20000307	31	Low voltage direct control universal pulse width	322/
				light weight rotor and stator with multiple coil	

